

**S/N 09/652,713**

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant:	Trung T. Doan	Examiner: Sylvia MacArthur
Serial No.:	09/652,713	Group Art Unit: 1763
Filed:	August 31, 2000	Docket: 303.928US5
Title:	CHEMICAL DISPENSING SYSTEM FOR SEMICONDUCTOR WAFER PROCESSING	

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**REPLY BRIEF UNDER 37 C.F.R. § 41.41**

MS Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPELLANT’S REPLY BRIEF**

This Reply Brief is filed in response to the Examiner’s Answer (hereinafter, the “Answer”), mailed September 27, 2007, and supplements the Appeal Brief filed by the Appellant on June 18, 2007. Please charge any required additional fees or credit overpayments to Deposit Account 19-0743.

**Status of Claims**

The Answer indicates that Appellant inadvertently omitted claims 42-45. Appellant acknowledges the error, and agrees that claims 42-45 are subject to the present appeal.

**Argument**

The Appellant has reviewed the Answer, and believes the statements in the Appeal Brief remain accurate and compelling. In responding to the Answer, the Appellant would like to further explore a selected few of the points raised by the Office. The responsive sections under *Part 10 Response to Argument*, beginning on page 7 of the Answer, will be used to reference each of these points.

**(A) –Tzeng Reference Fails to Disclose Important Limitations Claimed by the Appellant.**

In the Answer, the Office asserts that Appellant's arguments are directed merely to an "intended use" for the claimed structure. Appellant respectfully disagrees. The Office has provided no substantial evidence that the structure disclosed in the Tzeng reference is *structurally* capable of removing an excess fluid from an edge bead of a wafer undergoing wafer processing. The asserted structure in the Tzeng reference is directed to the removal of an excess fluid from a distribution nozzle *to prevent fluid dripping from the nozzle*. Appellant can find no discussion of edge accumulation of fluid on an in-process wafer in the Tzeng reference, and further responds that, since the asserted structure is directed to the removal of excess fluid from a distribution nozzle, there is no evidence that the structure disclosed in Tzeng is even operable to perform removal of a fluid from a wafer. Appellant maintains that the asserted structure, while providing the function of droplet removal from a nozzle, simply fails to provide a suctioning functionality that extends substantially to an edge of an in-process wafer. In fact, Appellant notes that the structure disclosed in the Tzeng reference is functionally operable to remove droplets from the nozzle when positioned *at any* distance from a wafer, and would be operable *even if no wafer were present*.

**(B) –The Sukenari Reference Fails to Disclose Important Limitations Claimed by the Appellant.**

In the Answer, the Office further asserts that the Sukenari reference discloses structural elements that produce a gas pressure that is lower than an ambient gas pressure (*e.g.*, a vacuum) that is operable to remove excess fluid from a surface of a wafer. Appellant strenuously disagrees. There is no objective evidence or valid technical reasoning to support the assertion that a gas pressure that is lower than an ambient pressure may be generated by the structure disclosed in the Sukenari reference. On the contrary, the Sukenari reference clearly teaches that the disclosed "assist nozzles" are operable to direct "assist gases", which may include oxygen and ozone, *outwardly towards a surface of the wafer* to remove exfoliated particles from the wafer surface.

Appellant can find absolutely no disclosure in the Sukenari reference that the “assist nozzles” are operable to suction particles, much less a liquid, from a surface of an in-process wafer.

**(C) – The Addition of an Additional Lower Nozzle Structure is not a Predictable Variation in view of the Disclosure in the Tzeng and Sukenari References.**

In the Answer, the Office further asserts that the addition of an additional nozzle that is positioned to remove liquid from an underside of a wafer is a “mere duplication of parts”. Accordingly, the Office asserts that the addition of a nozzle directed to an underside of the wafer is obvious in view of the disclosure in the Tzeng and Sukenari references. Appellant again disagrees. Referring again to the Tzeng reference, Appellant submits that the addition of a lower nozzle does not constitute a predictable variation of the structure disclosed in the Tzeng reference. The Tzeng reference is directed to the removal of droplets that form on a nozzle so that dripping of excess fluid from the nozzle and onto the wafer is avoided. Since a hypothetical lower nozzle would not be subject to the fluid dripping from the nozzle that is directed towards the wafer (as taught in the Tzeng reference), Appellant submits that the Tzeng reference fails to suggest, in any well-motivated fashion, the addition of a lower nozzle. Therefore, Appellant submits that the presently claimed structure is not a “mere duplication of parts” because the Tzeng reference would not motivate one skilled in the art to make the asserted modification.

With reference now to the Sukenari reference, Appellant also rejects the assertion that the presently claimed structure constitutes a “mere duplication of parts” that is obvious in view of the Sukenari reference. Appellant notes, in particular, that the Sukenari reference fails to disclose or suggest that the “assist gases” may be directed to an underside of the wafer by an additional nozzle located on an underside of the wafer. In fact, the Appellant notes that an underside of the wafer shown in the Sukenari reference would not be accessible to the “assist gases”, since the reference discloses that that the wafer is retained on a mounting device (*e.g.*, a turntable device), which *prevents* access to the underside of the wafer.

**Conclusion**

In summary, for the reasons set forth above and in the Appeal Brief, claims 36-39 and 41-45 have been improperly rejected under 35 USC § 102(e) as anticipated by the Tzeng or Sukenari references, and that claim 40 has been improperly rejected under 35 U.S.C. § 103(a) as unpatentable in view of either the Tzeng or Sukenari references. Therefore, the Appellant respectfully requests that these rejections be reversed, with allowance of the pending claims.

The Appellant submits that all of the claims are presently in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone the Appellant's attorney, Timothy Clise at (612) 349-9587 to facilitate prosecution of this Application. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.


Respectfully submitted,

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Date

27 Nov. '07

By

  
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**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: MS Appeal Brief - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 27th day of November 2007.

Name

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Signature

